

# NASA TECH BRIEF

*Marshall Space Flight Center*

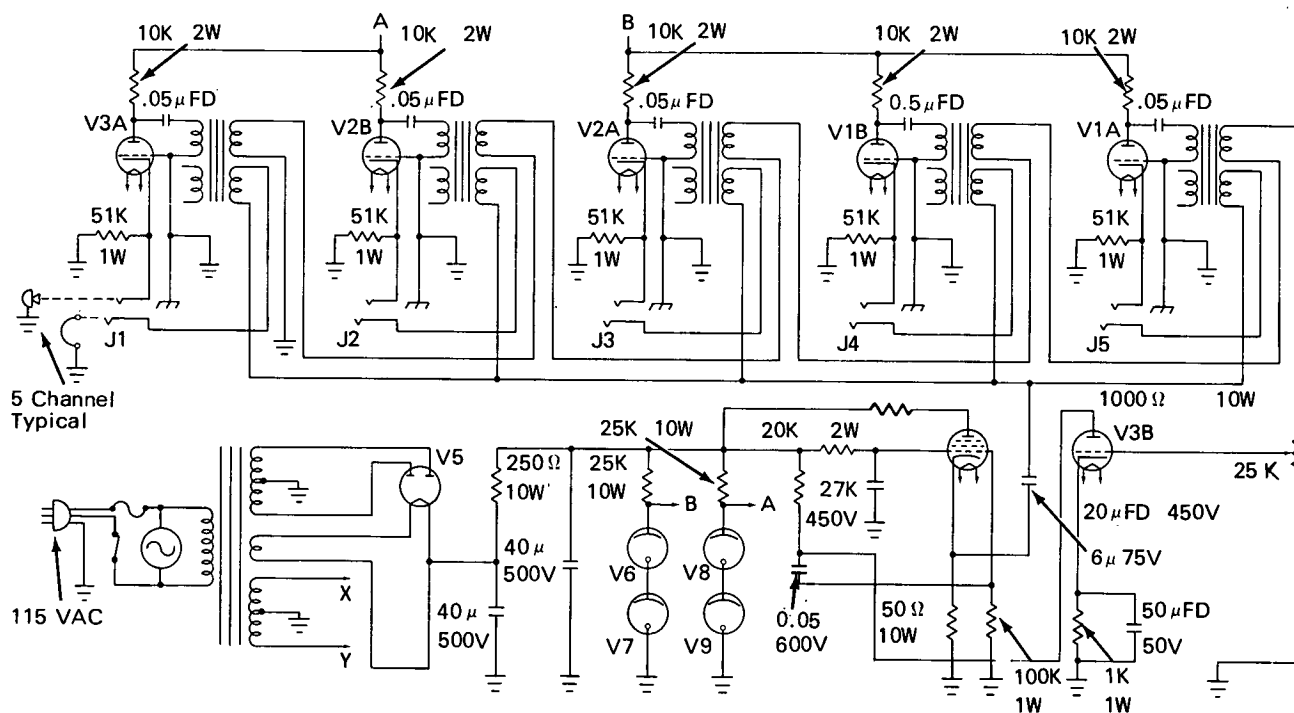


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## Multichannel Intercom with Simultaneous Send/Receive Capability

A simple, inexpensive intercom system uses only one amplifier and operates multiple inputs that can send and receive simultaneously, without the “push-

half of each secondary winding) that are routed to the headphones. The second set of secondary windings is series connected and routed into a gain



to-talk" requirement of previous systems. The system inhibits acoustical feedback by using microphones and headphones.

Each channel has a triode preamplifier (VIA thru V3A) connected to the microphone jack. If the microphone in any channel is unplugged, its preamplifier will be biased off. When connected in, the microphone acts as a transducer to vary the cathode bias from speech. All channels are transformer-coupled to common parallel secondaries (one

control. A triode preamplifier (V3B) that serves to shift the signal phase approximately  $\pi$  rad ( $180^\circ$ ) also feeds the signal to V4, which is used as a cathode follower. The output of V4 is routed to the headphone windings of each transformer. Feedback in the transformer circuit acts as a degenerative feedback to the headphones, which are connected to the signal origin, and as a regenerative feedback to all other channels. The net result is that, when an operator speaks into his microphone, his voice is attenuated

(continued overleaf)

by a factor of 5:1 or more in his own headphones and is amplified by this ratio in the other headphones. The power supply is a conventional full-wave supply with voltage regulation to eliminate line surge and oscillation problems throughout the circuitry.

**Note:**

No additional documentation is available.

**Patent status:**

No patent action is contemplated by NASA.

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